

REMARKS

Applicant submits this Amendment together with a Request for Continued Examination, and the required fee. Applicant therefore requests that the Examiner withdraw the finality of the previous action, and enter this Amendment.

By this Amendment, Applicant has cancelled Claims 1-4 and 23-26, and has added new Claims 28-35. Applicant submits that these claims are allowable for the following reasons.

The present invention, as recited in new Claim 28, is a fluid sealing device which takes the form of a planar plate having an opening, as is shown, for example, in Figure 2A. The plate includes a non-threaded annular seal, such as an O-ring, within the boundary of the opening. The seal extends around the entire boundary of the opening. The seal is supported by a support ring having an orifice which provides a fluid connection between the opening and the seal.

The seal claimed in Claim 28 can only operate correctly when a fluid component is brought into abutment with the seal. That is why the plate is generally planar; the seal extends only slightly out of the plane of the plate.

Claim 28 also recites that the annular seal comprises the sole means for providing a seal between the port faces. This feature is supported by the entire disclosure, which describes and illustrates only one seal, namely the O-ring. In particular, there is no threaded seal, or any other metal-to-metal seal, in the present invention.

The Examiner has rejected the claims over Smith in view of Stone. The Examiner cites Smith for its overall structure, but admits that Smith fails to show the claimed orifice. The Examiner cites Stone for its showing of

an orifice.

Stone provides a seal between two sections of pipe. The sealing function in Stone comes primarily from the threaded connection between the two pipe sections. Stone attempts to solve an inherent problem with threaded seals, namely that the clearances between threads allow leakage, especially at high pressure (see column 2, lines 45-54). The solution proposed by Stone is to add an elastomeric sealing element or plug 19.

The sealing element 19 of Stone is located at only one radial position of the joint. It is not disposed around the entire joint. This feature is apparent both from the drawings, which clearly show element 19 as a plug located at a discrete position, and from the specification, such as at column 1, lines 15-25. For example, at column 1, line 20-21, Stone states that the elastomeric material occupies "a portion only of the annular thread area of one of the sections".

It is therefore clear that the elastomeric plug 19 of Stone does not extend around the entire joint, and does not comprise the sole means of sealing. On the contrary, the joint of Stone still relies on the threaded connection to provide the basic seal. The elastomeric plug simply improves the performance of the threaded seal (see column 4, lines 13-33). The plug of Stone therefore does not correspond to the O-ring seal used in the present invention.

The present invention is an entirely different sealing apparatus, intended for use in a different context from that of Stone. The present invention is a generally planar plate, the seal being an annular structure held in an opening in that plate. The sealing is accomplished solely by abutting a port of a fluid component against the seal. No threaded connections are used for sealing.

In the present invention, the annular seal, by definition, extends around the entire boundary of the opening of the plate. This feature contrasts with Stone, in which an elastomeric plug is located at only one radial position.

In the present invention, the non-threaded annular seal is the sole means of sealing. In Stone, the elastomeric seal is not the sole means of sealing. Instead, the pipe joint of Stone is sealed primarily by a threaded connection, in which the elastomeric plug simply enhances the performance of the threads.

New Claim 28 contains features which emphasize the above differences. Claim 28 recites that the annular seal is non-threaded and extends around the entire boundary of the opening in the plate. The claim also recites that the annular seal is the sole means for providing a seal between port faces.

To make the combination of references proposed by the Examiner, a person of ordinary skill would be required to disregard significant portions of the teaching of Stone. To make the combination, the person of ordinary skill would need to adopt the orifice from Stone, yet disregard the non-annular structure of the elastomeric plug of Stone. That person would also need to disregard the teaching of Stone that the sealing is accomplished by threads, with the aid of the elastomeric plug. Applicant submits that the proposed combination does not fulfill the legal requirements of Section 103. It is not proper to assume that a person of ordinary skill will be able to "pick and choose" among various teachings of the references, adopting those that fit and discarding those that do not.

For these reasons alone, Applicant submits that Claim 28 defines patentably over Smith and Stone.

To explain further the inappropriateness of a combination of Smith and Stone, Applicant submits additional documentary evidence, described in the attached Declaration under Rule 132. In brief, the documentary evidence shows that threaded seals are considered inferior, even obsolete, and have been disfavored by the industry. The evidence will show that the foregoing statement describes the state of the art as of the time the present invention was made.

In reviewing the attached materials, the Examiner should be mindful of the fact that, in many fluid handling systems, threaded connections are present, but not for purposes of sealing. It is common, and entirely acceptable, to use threaded connectors to provide mechanical attachment. The present claims do not preclude such use of threaded connectors for purposes other than sealing.

A review of the attached Declaration, and of the materials cited therein, shows that threaded seals, at the time the present invention was made, were considered unacceptable, especially in medium and high pressure applications. For example, as explained in the Declaration, one of the references even characterizes threaded sealing as "obsolete". Another reference compares the use of threaded seals to the use of an outmoded processor in building a modern computer.

The Declaration and its attachments show an unequivocal attitude, in the industry, concerning threaded seals. Such seals are considered outmoded and unacceptable, and are not recommended.

The Examiner, in Paragraph 3 of the Official Action, states that the test for obviousness is what the combined teachings of the references would have suggested to those of ordinary skill in the art. The attached Declaration, and its cited references, show that threaded seals such as

that of Stone would have been considered obsolete to a person of ordinary skill, at the time the present invention was made. Such a person simply would not be motivated to obtain guidance from a reference that teaches threaded sealing. That is why Stone may not properly be combined with Smith under Section 103.

Therefore, Applicant submits that references such as Smith and Stone, which represent new technology and outmoded technology, must be considered to come from disparate and non-analogous arts.

For all of the above reasons, Applicant submits that Claim 28 is allowable over the prior art.

New Claim 32 is comparable to Claim 28, except that Claim 32 positively recites the fluid component which abuts the plate. This is the component which is illustrated, for example, in Figures 8B and 9B. Claim 32 is believed allowable for the same reasons given above.

All of the remaining claims depend from either Claim 28 or Claim 32, and are therefore also believed allowable.

Applicant has considered the other references, not applied to the claims. None of these references is believed to affect the patentability of the pending claims.